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FINAL REPORT
GRANVILLE SOLVENTS, INC.
GRANVILLE, OHIO

FOR

STATE OF OHIO
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF EMERGENCY & REMEDIAL RESPONSE

Mob. OROEK
145-01

SUMMARY OF EVENTS
SECTION 1.0

SECTION A

Summary of Events

Working under Mobilization Order 145-1 dated March 13, 1990 and issued by the Ohio Department of Environmental Protection. Clean Harbors of Kingston, Inc. mobilized a team of environmental service specialists to the Granville Solvents site in Granville Ohio in June 1990.

Granville Solvents, Inc. (GSI) is a solvent recovery recycling facility located in a mixed residential-light industrial area in Granville, Ohio. GSI was an active facility for about thirty years. In August 1986, GSI was ordered to cease operations at the site. No management of hazardous waste has occurred since that time. Approximately three hundred and fifteen 55-gallon drums and twelve excavated and underground storage tanks remain on the site. The drums contain solvents, sludges, acids and miscellaneous substances. Some of the drums show signs of corrosion and are beginning to leak. The tanks have been emptied, but still may contain sludges. The tanks are in fair to poor condition. It is likely that the facility's water supply well is located in close proximity to the facility.

Site Activities

Mobilization

Mobilization activities included the installation of power and phone service, transportation and siting office and decontamination trailers, as well as securing other on-site support equipment and materials.

Sampling & Analysis

Six (6) environmental samples were collected and sent to Clean Harbors Analytical Services (CHAS) in Braintree, MA for analysis. Additional samples were collected from the existing on site containerized materials and also sent to CHAS for waste profile analysis. Due to the fact that the materials contained in the drums and tanks were unknown, the initial sampling effort was performed n EPA Level "B" protection.

The purpose of the sampling was to segregate the material into several chemically compatible groups, as well as, to consider potential disposal options based on these groupings. To accomplish this task an on-site laboratory was utilized to perform field testing to assure that the materials had the properties necessary to conform to one of the respective categories. Field analysis included; pH, Flash Point, Solubility, Chlorine Scan, Cyanide and Sulfide Screen, Oxidation Potential, and Organic Head Space analysis. Upon completion of the

initial field tests, all containerized wastes were placed into suitable categories with a composite sample collected from each group. Each composite was then submitted for the necessary additional testing required for disposal purposes. Wastes that were generated by various on site activities (tank cleaning and personnel/equipment decontamination) were also placed into appropriate categories.

Following receipt of the analytical data, Waste Profiles were completed to obtain approval from the final disposal outlets. For waste streams with large quantities of containers or material, approval was sought directly from the final disposal outlets. For the categories with only a few containers, such as labpacks and acid wastes, approval was obtained from transfer facilities which currently had generic codes approved at the final disposal outlets. When all the approvals were obtained a cost comparison was conducted to determine the most cost effective alternatives for disposal. Shipment of the wastes began during the middle of the project and continued until the contract cost limits were approached.

Monitoring Well Installation

Four (4) Monitoring wells were installed per the specifications and at locations indicated by the OEPA on-site representatives. Some time delays were incurred at this point due to a very fine clay layer at the bottom of each well which made it difficult to set the wells at the desired depth.

Tank Cleaning

Cleaning of the storage tanks was also conducted during this period. An additional tank beyond those initially indicated in the scope of work was discovered and cleaned per OEPA. The tanks contained high concentrations of volatile chlorinated solvents that make entry difficult even with the most sophisticated protective equipment. Furthermore, flash floods as a result of heavy rainfall added to the amount of contaminated water which had to be handled and disposed of off-site. Tank excavations as well as the storage tanks would flood, with the water entering the tanks becoming contaminated upon contact with the tank bottoms.

Contract Funding

As a result of contract funding problems, the following tasks were not completed:

1. Cleaned tanks were not cut up and disposed of as prescribed in the original scope of work.

2. Three (3) loads of drums, originally profiled for disposal at Petrochem were not moved off-site.

3. The monitoring wells were not sampled.

4. The building was not decontaminated.

Demobilization

The site was secured prior to Clean Harbors concluding their portion of the project. All information generated during this phase of the project was made available to the follow up contractor.

SECTION B - ANALYSIS OF COLLECTED DATA

Environmental Samples

During the preliminary site investigation, six (6) composite samples and one background sample were taken under the supervision of the Ohio EPA On-Scene Coordinator. Composite samples 1, 3, and 4 consisted of three individual samples while samples 2, 5, and 6 were composed of five individual samples. The background sample represented the compositing of three individual samples.

The analytical results exhibited numerous chemicals including; methylene chloride, arsenic, barium, cadmium, chromium, lead, mercury, and bis(2-Ethylhexyl) Phthalate or fluoroanthene as well as some other trace contaminates in the six environmental samples. The backgrond sample contained some of the semi-volatile base/neutral compounds and metals in the same concentration as the environmental samples. However, no methylene chloride was detected in this sample.

Air Monitoring Samples

Air monitoring samples were collected using personal sampling pumps at various times, during site activities. The pump was situated at the intersection of the hot zone and the decontamination reduction zone and was used to verify that a minimum of fugitive dust emissions were being release.

The air monitoring results showed concentrations of total hydrocarbons, reported as benzene, as either nondetectable or slightly above the detection limit. None of the samples showed an appreciable concentration of organic vapors.

Waste Sample Analysis

These samples were taken from the composite groups of containerized waste on the site. The composites were created by comparing and grouping chemicals with similiar properties and characteristics. The physical and chemical information to complete this process was generated by on-site testing equipment. The analytical results were also utilized to profile the wastes for disposal and are also useful in identifying the types of materials which could have been released into the environment. The analytical results provided in this report are far to complex to discuss in detail within this section, however special attention should be directed at the concentrations and sample locations which contain methylene chloride. As was previously stated, methylene chloride although detected in the six environmental samples, was not shown to be present in the background sample.

Excavation Samples

Soil samples from the tank excavation sites were collected in accordance with the State of Ohio, Standard Operation Procedures and were analyzed to insure that the bottom of the tank excavations were free of contaminated soil.

The analytical results from these samples exhibited small quantities of volatile components as well as phenol in some cases. These conditions may have been created as a result of a hole in the tank or other improper storage or filling practices during the facilities operating years.

SECTION C - SUMMARY OF COSTS

The following line item breakdown illustrates the overall project costs associated with the interim actions undertaken at the Granville Solvents site. Further detail is provided in the copies of the invoices which have been made a part of this report. The total cost for the project will be $500,000.71 as shown below.

Labor	$161,999.99
Perdiem	11,334.50
Materials	14,830.04
Equipment	68,552.94
Analysis	101,007.00
Transportation	7,495.31
Disposal	115,467.50
Security	0.00
Misc. & Other (Site Support Equipment)	15,331.66
Sub total	$496,018.94
Final Report	3,981.77
Total	$500,000.71

SECTION D - REVIEW OF DISPOSAL METHODS

During the pre-mobilization meeting, the OEPA specified that the perferred disposal method was incineration by companies located within the state of Ohio. Since a great deal of the wastes on site were landfill banned due to high chlorinated solvent concentrations, compliance with this preference was such as Chemical Waste Management and Petrochem promulgated waste profiles and obtained approvals to incinerate these wastes within Ohio. As can be seen from the manifests provided 165 drums were disposed of through these outlets.

Other materials for incineration were trans-shiped through Clean Harbors of Natick. These consisted of Lab Pack quantities of wastes which were consolidated into compatible groups and packaged in appropriate containers for incineration or treatment. Four (4) fifty-five gallon, six (6) sixteen gallon and two (2) five gallon containers were disposed of in this manner.

Some of the materials that were not acceptable to the Ohio based disposal companies were disposed of through Clean Harbors of Braintree, Inc. Forty-six (46) full containers and seventy-nine (79) empty containers were disposed of at the Braintree facility in Chicago, Illinois. Forty-two (42) of the containers were considered solid, low BTU and nonrecoverable material and were also disposed of at Chemical Waste Management in Chicago. The remaining tow full drums were classified as recoverable chlorinated solvents (methylene chloride and 1,1,1 trichloroethane), each of these drums were distilled to recover the solvent and the still bottoms incinerated.

Three (3) bulk liquid loads (4,800 gallons each) were removed in tanker trucks to Clean harbors of Braintree, Inc. Of the three loads, tow loads were manifested as waste water with remaining load manifested as flammable solvent. This material was generated as a result of drum consolidation and tank decontamination efforts. All material was incinerated at tricil in Canada due to its' high volatile chlorinated solvent content.

GRANVILLE SOLVENTS

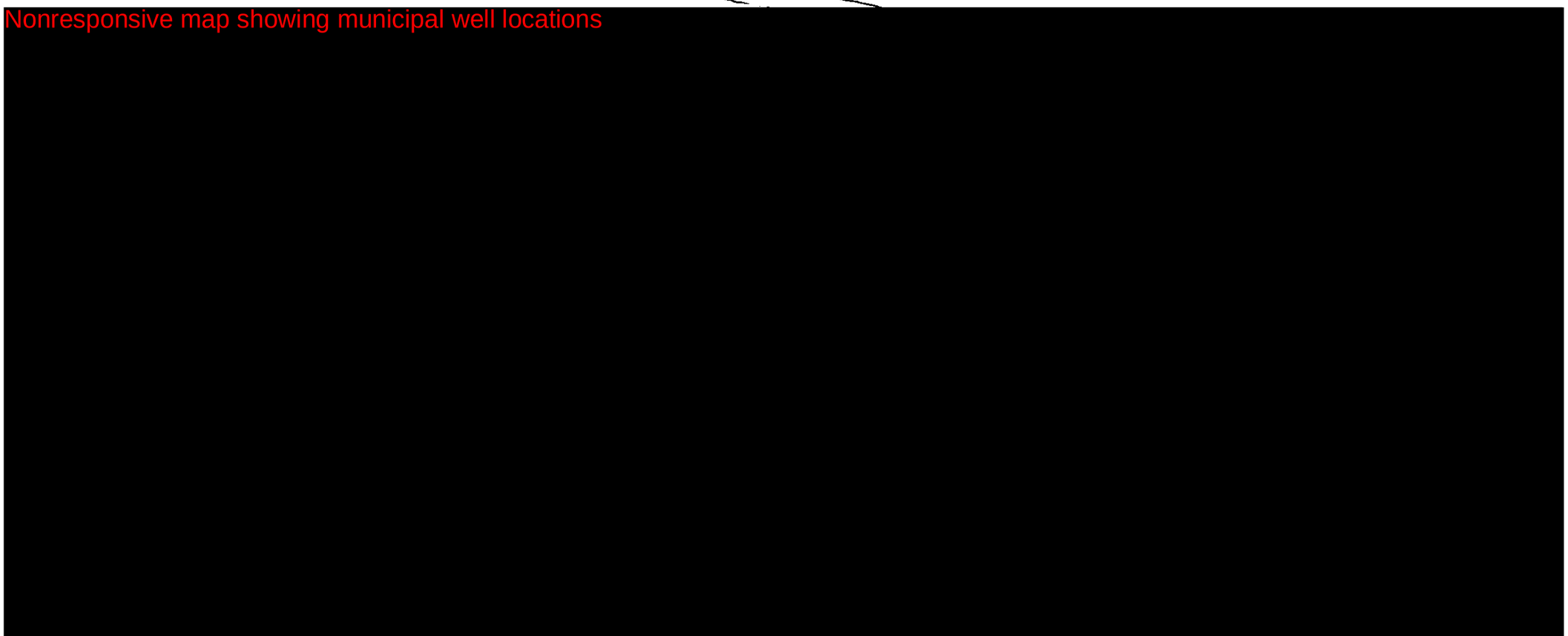
SITE MAP

N

1" ≈ 100'

(Comp. 1-6) = Composite Soil Sample Locations

RESIDENTIAL



ANALYTICAL SERVICES
325 WOOD ROAD, BRAINTREE, MA 02184
(617) 849-6070

REPORT OF ANALYSIS

Clean Harbors Cleveland Field Services
1200 E. 55th Street
Cleveland, OH 44103

Project: GRANVILLE EPA
P.O. #: L-0055

Date Received: 06/21/90
CHAS Lab #: 9006180

Attn: Mr. Craig Lass

Enclosed are the results for the sample(s) delivered to our laboratory on the date indicated above.

The methods listed represent those methodologies which were used to develop the best analytical techniques. Analytical results and quality assurance protocols are based on these guidelines. These meet the requirements for the reporting of results under the RCRA, NPDES and Safe Drinking Water Act regulations.

Clean Harbors Analytical Services has an active program of quality assurance and quality control. The program closely follows the guidance provided in the EPA Contract Laboratory Program Statement of Work (organic - 7/87 and inorganic - 7/85), the guidance provided in SW-846, and many other pertinent documents.

Should you have any questions concerning this work, please do not hesitate to contact me.

The information contained in this report is, to the best of my knowledge, accurate and complete.

Per/Date: _____ 9 Aug '90

Robert E. Bentley
Laboratory Manager

The samples listed below were received by Clean Harbors Analytical Services (CHAS) on 06/21/90 from Clean Harbors Cleveland Field Services.

The samples were identified as follows:

Client Identification	CHAS Lab #	Sample Type
COMP. 1	9006180-01	Soil
COMP. 2	9006180-02	Soil
COMP. 3	9006180-03	Soil
COMP. 4	9006180-04	Soil
COMP. 5	9006180-05	Soil
COMP. 6	9006180-06	Soil

The samples were received chilled and intact by CHAS. All samples were held upon receipt, per request written on Chain of Custody, for confirmation of requested analyses. According to instructions from the client, the requested analyses were changed from the following Toxicity Characteristic Leaching Procedure (TCLP) parameters to their non-TCLP counterparts: volatile (VOA), base-neutral and acid-extractable organics (BNA); polychlorinated biphenyls (PCB's) and total 8-RCRA listed metals.

The soil samples for volatile organic analyses were received in a 40 mL VOA vial rather than a soil VOA jar. There was significant headspace in these vials which may have lead to the loss of some of the volatile components.

The samples for BNA analysis were extracted and analyzed with no problems. All matrix spike recoveries were within the suggested ranges except pentachlorophenol, which was analyzed at a dilution of one to ten (1:10) due to physical appearances including color and viscosity. As a result, pentachlorophenol was diluted out. All surrogate recoveries were within the suggested ranges.

The PCB, pesticide and herbicide analyses were conducted with no problems encountered during the analyses. The matrix spike and matrix spike duplicate recoveries for herbicides were somewhat low. It is theorized that the recoveries may have been affected by the wet sample matrix. However, the relative percent difference between the matrix spike and matrix spike duplicate was well within the acceptance range. It is believed that these data are accurate as presented.

The metals quality control data provided were obtained from internal CHAS Q.C. assigned to the sample set nearest to 9006180. This sample set contained iron in very high concentrations. The recovery of the selenium for this QC sample was suppressed which is believed to have been due to the high iron concentrations in the soil. The sample was reanalyzed; again, the recovery was low. No other problems were encountered with metal analyses. In addition, no problems were encountered during the analysis of total solids.

All standard solutions used by CHAS are inventoried to monitor expiration date and origin to determine appropriate traceability to manufacturer, NBS, or EPA Repository.

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/22/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	11	ND
Chloromethane	22	ND	trans-1,3-Dichloropropene	11	ND
Bromomethane	22	ND	2-Chloroethylvinyl Ether	22	ND
Vinyl Chloride	22	ND	Bromoform	11	ND
Chloroethane	22	ND	1,1,2,2-Tetrachloroethane	11	ND
Methylene Chloride	11	880	Tetrachloroethene	11	ND
Trichlorofluoromethane	11	ND	Toluene	11	ND
1,1-Dichloroethene	11	ND	Chlorobenzene	11	ND
1,1-Dichloroethane	11	ND	Ethylbenzene	11	ND
trans-1,2-Dichloroethene	11	ND			
Chloroform	11	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	11	ND	Acetone	44	ND
1,1,1-Trichloroethane	11	ND	Carbon Disulfide	22	ND
Carbon Tetrachloride	11	ND	2-Butanone	44	ND
Bromodichloromethane	11	ND	Vinyl Acetate	22	ND
1,2-Dichloropropane	11	ND	4-Methyl-2-Pentanone	11	ND
cis-1,3-Dichloropropene	11	ND	2-Hexanone	11	ND
Trichloroethene	11	ND	Styrene	11	ND
Benzene	11	ND	Total Xylenes	11	ND
Dibromochloromethane	11	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	11	ND
			Methyl-t-Butylether(MTBE)	22	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:		Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane:	96 %		76-114	70-121
	d8-Toluene:	98 %		88-110	84-138
	p-Bromofluorobenzene:	102 %		86-115	59-113

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	1.9	ND	2,6-Dinitrotoluene	1.9	ND
1,3-Dichlorobenzene	1.9	ND	Diethylphthalate	1.9	ND
1,4-Dichlorobenzene	1.9	ND	4-Chlorophenyl-phenylether	1.9	ND
1,2-Dichlorobenzene	1.9	ND	Fluorene	1.9	ND
bis(2-Chloroisopropyl)Ether	1.9	ND	4-Nitroaniline	9.6	ND
N-Nitroso-Di-n-Propylamine	1.9	ND	N-Nitrosodiphenylamine	1.9	ND
Hexachloroethane	1.9	ND	4-Bromophenyl-phenylether	1.9	ND
Nitrobenzene	1.9	ND	Hexachlorobenzene	1.9	ND
Isophorone	1.9	ND	Phenanthrene	1.9	ND
bis(2-Chloroethoxy)Methane	1.9	ND	Anthracene	1.9	ND
1,2,4-Trichlorobenzene	1.9	ND	Di-n-Butylphthalate	1.9	ND
[illegible]halene	1.9	ND	Fluoranthene	1.9	TR
[illegible]niline	1.9	ND	Pyrene	1.9	ND
[illegible]ene	1.9	ND	Butylbenzylphthalate	1.9	ND
[illegible]	1.9	ND	3,3'-Dichlorobenzidine	3.8	ND
Hexachlorocyclopentadiene	1.9	ND	Benzo(a)Anthracene	1.9	ND
2-Chloronaphthalene	1.9	ND	bis(2-Ethylhexyl)Phthalate	3.8	ND
2-Nitroaniline	9.6	ND	Chrysene	1.9	ND
Dimethylphthalate	1.9	ND	Di-n-Octylphthalate	1.9	ND
Acenaphthylene	1.9	ND	Benzo(b)Fluoranthene	1.9	ND
3-Nitroaniline	9.6	ND	Benzo(k)Fluoranthene	1.9	ND
Acenaphthene	1.9	ND	Benzo(a)Pyrene	1.9	ND
Dibenzofuran	1.9	ND	Indeno(1,2,3-cd)Pyrene	1.9	ND
2,4-Dinitrotoluene	1.9	ND	Dibenz(a,h)Anthracene	1.9	ND
			Benzo(g,h,i)Perylene	1.9	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
TR = Trace amount present but below MDL

QA/QC

Surrogate Recoveries:

		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	32%	23% -	120%
2-Fluorobiphenyl	67%	25% -	121%
Terphenyl-D14	50%	18% -	137%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Acid Compounds	MDL*	Conc.*
Phenol	1.9	ND
2-Chlorophenol	1.9	ND
2-Methylphenol	1.9	ND
4-Methylphenol	1.9	ND
2-Nitrophenol	1.9	ND
2,4-Dimethylphenol	1.9	ND
2,4-Dichlorophenol	1.9	ND
4-Chloro-3-methylphenol	1.9	ND
2,4,6-Trichlorophenol	9.6	ND
2,4,5-Trichlorophenol	9.6	ND
2,4-Dinitrophenol	9.6	ND
4-Nitrophenol	9.6	ND
4,6-Dinitro-2-methylphenol	9.6	ND
Pentachlorophenol	9.6	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	47%	25%	- 121%
Phenol-D5	50%	24%	- 113%
2,4,6-Tribromophenol	54%	19%	- 122%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP.1
Sample Type: Soil

CHAS Lab #: 9006180-01G
Date Received: 06/21/90

REANALYSIS
Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C

Extraction Date: 08/01/90
Analysis Date: 08/03/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	3.3	ND	2,6-Dinitrotoluene	3.3	ND
1,3-Dichlorobenzene	3.3	ND	Diethylphthalate	3.3	ND
1,4-Dichlorobenzene	3.3	ND	4-Chlorophenyl-phenylether	3.3	ND
1,2-Dichlorobenzene	3.3	ND	Fluorene	3.3	ND
bis(2-Chloroisopropyl)Ether	3.3	ND	4-Nitroaniline	17	ND
N-Nitroso-Di-n-Propylamine	3.3	ND	N-Nitrosodiphenylamine	3.3	ND
Hexachloroethane	3.3	ND	4-Bromophenyl-phenylether	3.3	ND
Nitrobenzene	3.3	ND	Hexachlorobenzene	3.3	ND
Isophorone	3.3	ND	Phenanthrene	3.3	ND
bis(2-Chloroethoxy)Methane	3.3	ND	Anthracene	3.3	ND
1,2,4-Trichlorobenzene	3.3	ND	Di-n-Butylphthalate	3.3	ND
Naphthalene	3.3	ND	Fluoranthene	3.3	ND
4-Chloroaniline	3.3	ND	Pyrene	3.3	ND
Hexachlorobutadiene	3.3	ND	Butylbenzylphthalate	3.3	ND
2-Methylnaphthalene	3.3	ND	3,3'-Dichlorobenzidine	17	ND
Hexachlorocyclopentadiene	3.3	ND	Benzo(a)Anthracene	3.3	ND
2-Chloronaphthalene	3.3	ND	bis(2-Ethylhexyl)Phthalate	17	ND
2-Nitroaniline	17	ND	Chrysene	3.3	ND
Dimethylphthalate	3.3	ND	Di-n-Octylphthalate	3.3	ND
Acenaphthylene	3.3	ND	Benzo(b)Fluoranthene	3.3	ND
3-Nitroaniline	17	ND	Benzo(k)Fluoranthene	3.3	ND
Acenaphthene	3.3	ND	Benzo(a)Pyrene	3.3	ND
Dibenzofuran	3.3	ND	Indeno(1,2,3-cd)Pyrene	3.3	ND
2,4-Dinitrotoluene	3.3	ND	Dibenz(a,h)Anthracene	3.3	ND
			Benzo(g,h,i)Perylene	3.3	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range CLP
Nitrobenzene-D5	42%	23% - 120%
2-Fluorobiphenyl	91%	25% - 121%
Terphenyl-D14	88%	18% - 137%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP.1
Sample Type: Soil

CHAS Lab #: 9006180-01G
Date Received: 06/21/90

REANALYSIS
Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C

Extraction Date: 08/01/90
Analysis Date: 08/03/90

Acid Compounds	MDL*	Conc.*
Phenol	3.3	ND
2-Chlorophenol	3.3	ND
2-Methylphenol	3.3	ND
4-Methylphenol	3.3	ND
2-Nitrophenol	3.3	ND
2,4-Dimethylphenol	3.3	ND
2,4-Dichlorophenol	3.3	ND
4-Chloro-3-methylphenol	3.3	ND
2,4,6-Trichlorophenol	17	ND
2,4,5-Trichlorophenol	17	ND
2,4-Dinitrophenol	17	ND
4-Nitrophenol	17	ND
4,6-Dinitro-2-methylphenol	17	ND
Pentachlorophenol	17	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	56%	25% -	121%
Phenol-D5	50%	24% -	113%
2,4,6-Tribromophenol	67%	19% -	122%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	0.2	ND	mg/kg
PCB - Aroclor 1221	0.2	ND	mg/kg
PCB - Aroclor 1232	0.2	ND	mg/kg
PCB - Aroclor 1242	0.2	ND	mg/kg
PCB - Aroclor 1248	0.2	ND	mg/kg
PCB - Aroclor 1254	0.2	ND	mg/kg
PCB - Aroclor 1260	0.2	ND	mg/kg

Note: ND = Below minimum detectable level (MDL)
Soil, solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: 116% 78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
Alpha-BHC		ND	
[illegible]	[illegible]	[illegible]	mg/kg
[illegible]-BHC	0.5	ND	
[illegible] BHC (Lindane)	[illegible]	[illegible]	mg/kg
Heptachlor	0.5	ND	mg/kg
Aldrin	0.5	ND	mg/kg
Heptachlor Epoxide	0.5	ND	mg/kg
Endosulfan I	0.5	ND	mg/kg
4,4'-DDE	0.5	ND	mg/kg
Dieldrin	0.5	ND	mg/kg
Endrin	0.5	ND	mg/kg
4,4'-DDD	0.5	ND	mg/kg
Endosulfan II	0.5	ND	mg/kg
4,4'-DDT	0.5	ND	mg/kg
Endrin Aldehyde	0.5	ND	mg/kg
Endosulfan Sulfate	0.5	ND	mg/kg
Methoxychlor	0.5	ND	mg/kg
Endrin Ketone	0.5	ND	mg/kg
Chlordane	1.0	ND	mg/kg
Toxaphene	2.0	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: 116% 78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 06/28/90

Parameter	MDL	Concentration	Units
2,4-D	2.0	ND	mg/kg
Silvex(2,4,5-TP)	2.0	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.122	7.61	06/25/90	06/27/90	3050/7060(c)
Barium - Total	2.4	82	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.236	4.02	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.47	10	06/22/90	06/25/90	3050/6010(c)
Lead - Total	5	50	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0649	0.0649	06/25/90	06/26/90	7471(c)
Selenium - Total	0.183	ND	06/25/90	06/27/90	3050/7740(c)
Silver - Total	1.1	ND	06/22/90	06/29/90	3005/6010(c)

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
Soil/solid samples based on sample dry weight.

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 1
Sample Type: Soil

CHAS Lab #: 9006180-01F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	53.9	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/26/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	92	ND
Chloromethane	180	ND	trans-1,3-Dichloropropene	92	ND
Bromomethane	180	ND	2-Chloroethylvinyl Ether	180	ND
Vinyl Chloride	180	ND	Bromoform	92	ND
Chloroethane	180	ND	1,1,2,2-Tetrachloroethane	92	ND
Methylene Chloride	92	340	Tetrachloroethene	92	ND
Trichlorofluoromethane	92	ND	Toluene	[illegible]	[illegible]
1,1-Dichloroethene	92	ND	[illegible]ene	[illegible]	[illegible]
1,1-Dichloroethane	92	ND	Ethylbenzene	[illegible]	[illegible]
trans-1,2-Dichloroethene	92	ND			
Chloroform	92	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	92	ND	Acetone	370	ND
1,1,1-Trichloroethane	92	ND	Carbon Disulfide	180	ND
Carbon Tetrachloride	92	ND	2-Butanone	370	ND
Bromodichloromethane	92	ND	Vinyl Acetate	180	ND
1,2-Dichloropropane	92	ND	4-Methyl-2-Pentanone	92	ND
cis-1,3-Dichloropropene	92	ND	2-Hexanone	92	ND
Trichloroethene	92	ND	Styrene	92	ND
Benzene	92	ND	Total Xylenes	92	ND
Dibromochloromethane	92	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	92	ND
			Methyl-t-Butylether(MTBE)	180	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:		Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane:	93 %		76-114	70-121
	d8-Toluene:	96 %		88-110	84-138
	p-Bromofluorobenzene:	98 %		86-115	59-113

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	1.7	ND	2,6-Dinitrotoluene	1.7	ND
1,3-Dichlorobenzene	1.7	ND	Diethylphthalate	1.7	ND
1,4-Dichlorobenzene	1.7	ND	4-Chlorophenyl-phenylether	1.7	ND
1,2-Dichlorobenzene	1.7	ND	Fluorene	1.7	ND
bis(2-Chloroisopropyl)Ether	1.7	ND	4-Nitroaniline	8.5	ND
N-Nitroso-Di-n-Propylamine	1.7	ND	N-Nitrosodiphenylamine	1.7	ND
Hexachloroethane	1.7	ND	4-Bromophenyl-phenylether	1.7	ND
Nitrobenzene	1.7	ND	Hexachlorobenzene	1.7	ND
Isophorone	1.7	ND	Phenanthrene	1.7	ND
bis(2-Chloroethoxy)Methane	1.7	ND	Anthracene	1.7	ND
1,2,4-Trichlorobenzene	1.7	ND	Di-n-Butylphthalate	1.7	ND
Naphthalene	1.7	ND	Fluoranthene	1.7	ND
4-Chloroaniline	1.7	ND	Pyrene	1.7	ND
Hexachlorobutadiene	1.7	ND	Butylbenzylphthalate	1.7	ND
2-Methylnaphthalene	1.7	ND	3,3'-Dichlorobenzidine	3.4	ND
Hexachlorocyclopentadiene	1.7	ND	Benzo(a)Anthracene	1.7	ND
2-Chloronaphthalene	1.7	ND	bis(2-Ethylhexyl)Phthalate	3.4	2.2
2-Nitroaniline	8.5	ND	Chrysene	1.7	ND
Dimethylphthalate	1.7	ND	Di-n-Octylphthalate	1.7	ND
Acenaphthylene	1.7	ND	Benzo(b)Fluoranthene	1.7	ND
3-Nitroaniline	8.5	ND	Benzo(k)Fluoranthene	1.7	ND
Acenaphthene	1.7	ND	Benzo(a)Pyrene	1.7	ND
Dibenzofuran	1.7	ND	Indeno(1,2,3-cd)Pyrene	1.7	ND
2,4-Dinitrotoluene	1.7	ND	Dibenz(a,h)Anthracene	1.7	ND
			Benzo(g,h,i)Perylene	1.7	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:

		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	49%	23% -	120%
2-Fluorobiphenyl	66%	25% -	121%
Terphenyl-D14	49%	18% -	137%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Acid Compounds	MDL*	Conc.*
Phenol	1.7	ND
2-Chlorophenol	1.7	ND
2-Methylphenol	1.7	ND
4-Methylphenol	1.7	ND
2-Nitrophenol	1.7	ND
2,4-Dimethylphenol	1.7	ND
2,4-Dichlorophenol	1.7	ND
4-Chloro-3-methylphenol	1.7	ND
2,4,6-Trichlorophenol	8.5	ND
2,4,5-Trichlorophenol	8.5	ND
2,4-Dinitrophenol	8.5	ND
4-Nitrophenol	8.5	ND
4,6-Dinitro-2-methylphenol	8.5	ND
Pentachlorophenol	8.5	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	38%	25%	- 121%
Phenol-D5	62%	24%	- 113%
2,4,6-Tribromophenol	101%	19%	- 122%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	0.3	ND	mg/kg
PCB - Aroclor 1221	0.3	ND	mg/kg
PCB - Aroclor 1232	0.3	ND	mg/kg
PCB - Aroclor 1242	0.3	ND	mg/kg
PCB - Aroclor 1248	0.3	ND	mg/kg
PCB - Aroclor 1254	0.3	ND	mg/kg
PCB - Aroclor 1260	0.3	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: 118%		78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/26/90

Parameter	MDL	Concentration	Units
Alpha-BHC		ND	
[illegible]	[illegible]		[illegible]
[illegible]-BHC	[illegible]	ND	
[illegible] (Lindane)	[illegible]	[illegible]	mg/kg
Heptachlor	1.5	ND	mg/kg
Aldrin	1.5	ND	mg/kg
Heptachlor Epoxide	1.5	ND	mg/kg
Endosulfan I	1.5	ND	mg/kg
4,4'-DDE	1.5	ND	mg/kg
Dieldrin	1.5	ND	mg/kg
Endrin	1.5	ND	mg/kg
4,4'-DDD	1.5	ND	mg/kg
Endosulfan II	1.5	ND	mg/kg
4,4'-DDT	1.5	ND	mg/kg
Endrin Aldehyde	1.5	ND	mg/kg
Endosulfan Sulfate	1.5	ND	mg/kg
Methoxychlor	1.5	ND	mg/kg
Endrin Ketone	1.5	ND	mg/kg
Chlordane	3.0	ND	mg/kg
Toxaphene	6.0	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: 118%		78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 06/28/90

Parameter	MDL	Concentration	Units
2,4-D	0.1	ND	mg/kg
Silvex(2,4,5-TP)	0.1	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.086	16.0	06/22/90	06/25/90	3050/7060(c)
Barium - Total	2.0	83	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.202	2.22	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.40	13	06/22/90	06/25/90	3050/6010(c)
Lead - Total	4	40	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0839	0.0848	06/25/90	06/26/90	7471(c)
Selenium - Total	0.130	ND	06/22/90	06/27/90	3050/7740(c)
Silver - Total	0.78	ND	06/22/90	06/29/90	3005/6010(c)

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 2
Sample Type: Soil

CHAS Lab #: 9006180-02F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	71.8	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/26/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	110	ND
Chloromethane	230	ND	trans-1,3-Dichloropropene	110	ND
Bromomethane	230	ND	2-Chloroethylvinyl Ether	230	ND
Vinyl Chloride	230	ND	Bromoform	110	ND
Chloroethane	230	ND	1,1,2,2-Tetrachloroethane	110	ND
Methylene Chloride	110	230	Tetrachloroethene	110	ND
Trichlorofluoromethane	110	ND	Toluene	110	ND
1,1-Dichloroethene	110	ND	Chlorobenzene	110	ND
1,1-Dichloroethane	110	ND	Ethylbenzene	110	ND
trans-1,2-Dichloroethene	110	ND			
Chloroform	110	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	110	ND	Acetone	460	ND
1,1,1-Trichloroethane	110	ND	Carbon Disulfide	230	ND
Carbon Tetrachloride	110	ND	2-Butanone	460	ND
Bromodichloromethane	110	ND	Vinyl Acetate	230	ND
1,2-Dichloropropane	110	ND	4-Methyl-2-Pentanone	110	ND
cis-1,3-Dichloropropene	110	ND	2-Hexanone	110	ND
Trichloroethene	110	ND	Styrene	110	ND
Benzene	110	ND	Total Xylenes	110	ND
Dibromochloromethane	110	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	110	ND
			Methyl-t-Butylether(MTBE)	230	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:	Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane: 93 %		76-114	70-121
	d8-Toluene: 103 %		88-110	84-138
	p-Bromofluorobenzene: 112 %		86-115	59-113

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	1.7	ND	2,6-Dinitrotoluene	1.7	ND
1,3-Dichlorobenzene	1.7	ND	Diethylphthalate	1.7	ND
1,4-Dichlorobenzene	1.7	ND	4-Chlorophenyl-phenylether	1.7	ND
1,2-Dichlorobenzene	1.7	ND	Fluorene	1.7	ND
bis(2-Chloroisopropyl)Ether	1.7	ND	4-Nitroaniline	8.5	ND
N-Nitroso-Di-n-Propylamine	1.7	ND	N-Nitrosodiphenylamine	1.7	ND
Hexachloroethane	1.7	ND	4-Bromophenyl-phenylether	1.7	ND
Nitrobenzene	1.7	ND	Hexachlorobenzene	1.7	ND
Isophorone	1.7	2.6	Phenanthrene	1.7	TR
bis(2-Chloroethoxy)Methane	1.7	ND	Anthracene	1.7	ND
1,2,4-Trichlorobenzene	1.7	ND	Di-n-Butylphthalate	1.7	ND
Naphthalene	1.7	ND	Fluoranthene	1.7	TR
4-Chloroaniline	1.7	ND	Pyrene	1.7	TR
Hexachlorobutadiene	1.7	ND	Butylbenzylphthalate	1.7	ND
2-Methylnaphthalene	1.7	TR	3,3'-Dichlorobenzidine	3.4	ND
Hexachlorocyclopentadiene	1.7	ND	Benzo(a)Anthracene	1.7	ND
2-Chloronaphthalene	1.7	ND	bis(2-Ethylhexyl)Phthalate	3.4	8.6
2-Nitroaniline	8.5	ND	Chrysene	1.7	ND
Dimethylphthalate	1.7	ND	Di-n-Octylphthalate	1.7	ND
Acenaphthylene	1.7	ND	Benzo(b)Fluoranthene	1.7	ND
3-Nitroaniline	8.5	ND	Benzo(k)Fluoranthene	1.7	TR
Acenaphthene	1.7	ND	Benzo(a)Pyrene	1.7	TR
Dibenzofuran	1.7	ND	Indeno(1,2,3-cd)Pyrene	1.7	ND
2,4-Dinitrotoluene	1.7	ND	Dibenz(a,h)Anthracene	1.7	ND
			Benzo(g,h,i)Perylene	1.7	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
TR = Trace amount present but below MDL

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	62%	23% -	120%
2-Fluorobiphenyl	69%	25% -	121%
Terphenyl-D14	62%	18% -	137%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Acid Compounds	MDL*	Conc.*
Phenol	1.7	ND
2-Chlorophenol	1.7	ND
2-Methylphenol	1.7	ND
4-Methylphenol	1.7	ND
2-Nitrophenol	1.7	ND
2,4-Dimethylphenol	1.7	ND
2,4-Dichlorophenol	1.7	ND
4-Chloro-3-methylphenol	1.7	ND
2,4,6-Trichlorophenol	8.5	ND
2,4,5-Trichlorophenol	8.5	ND
2,4-Dinitrophenol	8.5	ND
4-Nitrophenol	8.5	ND
4,6-Dinitro-2-methylphenol	8.5	ND
Pentachlorophenol	8.5	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	36%	25%	- 121%
Phenol-D5	52%	24%	- 113%
2,4,6-Tribromophenol	73%	19%	- 122%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	1.0	ND	mg/kg
PCB - Aroclor 1221	1.0	ND	mg/kg
PCB - Aroclor 1232	1.0	ND	mg/kg
PCB - Aroclor 1242	1.0	ND	mg/kg
PCB - Aroclor 1248	1.0	ND	mg/kg
PCB - Aroclor 1254	1.0	ND	mg/kg
PCB - Aroclor 1260	1.0	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: Diluted out. 78-148%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
Alpha-BHC	25	ND	mg/kg
Beta-BHC	25	ND	mg/kg
Delta-BHC	25	ND	mg/kg
Gamma-BHC (Lindane)	25	ND	mg/kg
Heptachlor	25	ND	mg/kg
Aldrin	25	ND	mg/kg
Heptachlor Epoxide	25	ND	mg/kg
Endosulfan I	25	ND	mg/kg
4,4'-DDE	25	ND	mg/kg
Dieldrin	25	ND	mg/kg
Endrin	25	ND	mg/kg
4,4'-DDD	25	ND	mg/kg
Endosulfan II	25	ND	mg/kg
4,4'-DDT	25	ND	mg/kg
Endrin Aldehyde	25	ND	mg/kg
Endosulfan Sulfate	25	ND	mg/kg
Methoxychlor	25	ND	mg/kg
Endrin Ketone	25	ND	mg/kg
Chlordane	50	ND	mg/kg
Toxaphene	100	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: Diluted out. 78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 07/03/90

Parameter	MDL	Concentration	Units
2,4-D	10	ND	mg/kg
Silvex(2,4,5-TP)	10	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.069	15.3	06/22/90	06/25/90	3050/7060(c)
Barium - Total	2.1	68	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.215	1.85	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.43	18	06/22/90	06/25/90	3050/6010(c)
Lead - Total	4	110	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0817	0.2717	06/25/90	06/26/90	7471(c)
Selenium - Total	0.104	ND	06/22/90	06/27/90	3050/7740(c)
Silver - Total	0.89	ND	06/22/90	06/29/90	3005/6010(c)

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
Soil/solid samples based on sample dry weight.

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 3
Sample Type: Soil

CHAS Lab #: 9006180-03F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	77.9	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/26/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	95	ND
Chloromethane	190	ND	trans-1,3-Dichloropropene	95	ND
Bromomethane	190	ND	2-Chloroethylvinyl Ether	190	ND
Vinyl Chloride	190	ND	Bromoform	95	ND
Chloroethane	190	ND	1,1,2,2-Tetrachloroethane	95	ND
Methylene Chloride	95	480	Tetrachloroethene	95	ND
Trichlorofluoromethane	95	ND	Toluene	95	ND
1,1-Dichloroethene	95				
1,1-Dichloroethane	95	ND	[illegible]	[illegible]	[illegible]
trans-1,2-Dichloroethene	95	ND			
Chloroform	95	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	95	ND	Acetone	380	ND
1,1,1-Trichloroethane	95	ND	Carbon Disulfide	190	ND
Carbon Tetrachloride	95	ND	2-Butanone	380	ND
Bromodichloromethane	95	ND	Vinyl Acetate	190	ND
1,2-Dichloropropane	95	ND	4-Methyl-2-Pentanone	95	ND
cis-1,3-Dichloropropene	95	ND	2-Hexanone	95	ND
Trichloroethene	95	ND	Styrene	95	ND
Benzene	95	ND	Total Xylenes	95	ND
Dibromochloromethane	95	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	95	ND
			Methyl-t-Butylether(MTBE)	190	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:		Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane:	95 %		76-114	70-121
	d8-Toluene:	100 %		88-110	84-138
	p-Bromofluorobenzene:	111 %		86-115	59-113

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/02/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	1.7	ND	2,6-Dinitrotoluene	1.7	ND
1,3-Dichlorobenzene	1.7	ND	Diethylphthalate	1.7	ND
1,4-Dichlorobenzene	1.7	ND	4-Chlorophenyl-phenylether	1.7	ND
1,2-Dichlorobenzene	1.7	ND	Fluorene	1.7	ND
bis(2-Chloroisopropyl)Ether	1.7	ND	4-Nitroaniline	8.6	ND
N-Nitroso-Di-n-Propylamine	1.7	ND	N-Nitrosodiphenylamine	1.7	ND
Hexachloroethane	1.7	ND	4-Bromophenyl-phenylether	1.7	ND
Nitrobenzene	1.7	ND	Hexachlorobenzene	1.7	ND
Isophorone	1.7	ND	Phenanthrene	1.7	ND
bis(2-Chloroethoxy)Methane	1.7	ND	Anthracene	1.7	ND
1,2,4-Trichlorobenzene	1.7	ND	Di-n-Butylphthalate	1.7	ND
Naphthalene	1.7	ND	Fluoranthene	1.7	TR
4-Chloroaniline	1.7	ND	Pyrene	1.7	ND
Hexachlorobutadiene	1.7	ND	Butylbenzylphthalate	1.7	ND
2-Methylnaphthalene	1.7	ND	3,3'-Dichlorobenzidine	3.4	ND
Hexachlorocyclopentadiene	1.7	ND	Benzo(a)Anthracene	1.7	ND
2-Chloronaphthalene	1.7	ND	bis(2-Ethylhexyl)Phthalate	3.4	ND
2-Nitroaniline	8.6	ND	Chrysene	1.7	ND
Dimethylphthalate	1.7	ND	Di-n-Octylphthalate	1.7	ND
Acenaphthylene	1.7	ND	Benzo(b)Fluoranthene	1.7	ND
3-Nitroaniline	8.6	ND	Benzo(k)Fluoranthene	1.7	TR
Acenaphthene	1.7	ND	Benzo(a)Pyrene	1.7	ND
Dibenzofuran	1.7	ND	Indeno(1,2,3-cd)Pyrene	1.7	ND
2,4-Dinitrotoluene	1.7	ND	Dibenz(a,h)Anthracene	1.7	ND
			Benzo(g,h,i)Perylene	1.7	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
TR = Trace amount present but below MDL

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	52%	23%	- 120%
2-Fluorobiphenyl	55%	25%	- 121%
Terphenyl-D14	67%	18%	- 137%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/02/90

Acid Compounds	MDL*	Conc.*
Phenol	1.7	ND
2-Chlorophenol	1.7	ND
2-Methylphenol	1.7	ND
4-Methylphenol	1.7	ND
2-Nitrophenol	1.7	ND
2,4-Dimethylphenol	1.7	ND
2,4-Dichlorophenol	1.7	ND
4-Chloro-3-methylphenol	1.7	ND
2,4,6-Trichlorophenol	8.6	ND
2,4,5-Trichlorophenol	8.6	ND
2,4-Dinitrophenol	8.6	ND
4-Nitrophenol	8.6	ND
4,6-Dinitro-2-methylphenol	8.6	ND
Pentachlorophenol	8.6	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	47%	25%	- 121%
Phenol-D5	52%	24%	- 113%
2,4,6-Tribromophenol	55%	19%	- 122%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	0.1	ND	mg/kg
PCB - Aroclor 1221	0.1	ND	mg/kg
PCB - Aroclor 1232	0.1	ND	mg/kg
PCB - Aroclor 1242	0.1	ND	mg/kg
PCB - Aroclor 1248	0.1	ND	mg/kg
PCB - Aroclor 1254	0.1	ND	mg/kg
PCB - Aroclor 1260	0.1	ND	mg/kg

As: ND = Below minimum detectable level (MDL)
Soil/Sol. sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: 105%		78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
Alpha-BHC	0.5	ND	mg/kg
Beta-BHC	0.5	ND	mg/kg
Delta-BHC	0.5	ND	mg/kg
Gamma-BHC (Lindane)	0.5	ND	mg/kg
Heptachlor	0.5	ND	mg/kg
Aldrin	0.5	ND	mg/kg
Heptachlor Epoxide	0.5	ND	mg/kg
Endosulfan I	0.5	ND	mg/kg
4,4'-DDE	0.5	ND	mg/kg
Dieldrin	0.5	ND	mg/kg
Endrin	0.5	ND	mg/kg
4,4'-DDD	0.5	ND	mg/kg
Endosulfan II	0.5	ND	mg/kg
4,4'-DDT	0.5	ND	mg/kg
Endrin Aldehyde	0.5	ND	mg/kg
Endosulfan Sulfate	0.5	ND	mg/kg
Methoxychlor	0.5	ND	mg/kg
Endrin Ketone	0.5	ND	mg/kg
Chlordane	1.0	ND	mg/kg
Toxaphene	2.0	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: 105%		78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 06/28/90

Parameter	MDL	Concentration	Units
2,4-D	1.0	ND	mg/kg
Silvex(2,4,5-TP)	1.0	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.086	18.7	06/22/90	06/25/90	3050/7060(c)
Barium - Total	2.3	52	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.228	0.866	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.46	9.4	06/22/90	06/25/90	3050/6010(c)
Lead - Total	5	40	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0779	ND	06/25/90	06/26/90	7471(c)
Selenium - Total	0.129	ND	06/22/90	06/27/90	3050/7740(c)
Silver - Total	0.71	ND	06/22/90	06/29/90	3005/6010(c)

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 4
Sample Type: Soil

CHAS Lab #: 9006180-04F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	75.7	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/26/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	92	ND
Chloromethane	180	ND	trans-1,3-Dichloropropene	92	ND
Bromomethane	180	ND	2-Chloroethylvinyl Ether	180	ND
Vinyl Chloride	180	ND	Bromoform	92	ND
Chloroethane	180	ND	1,1,2,2-Tetrachloroethane	92	ND
Methylene Chloride	92	500	Tetrachloroethene	92	ND
Trichlorofluoromethane	92	ND	Toluene	92	ND
1,1-Dichloroethene	92	ND	Chlorobenzene	92	ND
1,1-Dichloroethane	92	ND	Ethylbenzene	92	ND
trans-1,2-Dichloroethene	92	ND			
Chloroform	92	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	92	ND	Acetone	370	ND
1,1,1-Trichloroethane	92	ND	Carbon Disulfide	180	ND
Carbon Tetrachloride	92	ND	2-Butanone	370	ND
Bromodichloromethane	92	ND	Vinyl Acetate	180	ND
1,2-Dichloropropane	92	ND	4-Methyl-2-Pentanone	92	ND
cis-1,3-Dichloropropene	92	ND	2-Hexanone	92	ND
Trichloroethene	92	ND	Styrene	92	ND
Benzene	92	ND	Total Xylenes	92	ND
Dibromochloromethane	92	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	92	ND
			Methyl-t-Butylether(MTBE)	180	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:		Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane:	96 %		76-114	70-121
	d8-Toluene:	100 %		88-110	84-138
	p-Bromofluorobenzene:	106 %		86-115	59-113

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 06/28/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	1.6	ND	2,6-Dinitrotoluene	1.6	ND
1,3-Dichlorobenzene	1.6	ND	Diethylphthalate	1.6	ND
1,4-Dichlorobenzene	1.6	ND	4-Chlorophenyl-phenylether	1.6	ND
1,2-Dichlorobenzene	1.6	ND	Fluorene	1.6	ND
bis(2-Chloroisopropyl)Ether	1.6	ND	4-Nitroaniline	8.1	ND
N-Nitroso-Di-n-Propylamine	1.6	ND	N-Nitrosodiphenylamine	1.6	ND
Hexachloroethane	1.6	ND	4-Bromophenyl-phenylether	1.6	ND
Nitrobenzene	1.6	ND	Hexachlorobenzene	1.6	ND
Isophorone	1.6	ND	Phenanthrene	1.6	TR
bis(2-Chloroethoxy)Methane	1.6	ND	Anthracene	1.6	ND
1,2,4-Trichlorobenzene	1.6	ND	Di-n-Butylphthalate	1.6	ND
Naphthalene	1.6	ND	Fluoranthene	1.6	4.4
4-Chloroaniline	1.6	ND	Pyrene	1.6	3.0
Hexachlorobutadiene	1.6	ND	Butylbenzylphthalate	1.6	ND
2-Methylnaphthalene	1.6	ND	3,3'-Dichlorobenzidine	3.2	ND
Hexachlorocyclopentadiene	1.6	ND	Benzo(a)Anthracene	1.6	2.2
2-Chloronaphthalene	1.6	ND	bis(2-Ethylhexyl)Phthalate	3.2	TR
2-Nitroaniline	8.1	ND	Chrysene	1.6	2.2
Dimethylphthalate	1.6	ND	Di-n-Octylphthalate	1.6	ND
Acenaphthylene	1.6	ND	Benzo(b)Fluoranthene	1.6	ND
3-Nitroaniline	8.1	ND	Benzo(k)Fluoranthene	1.6	5.6
Acenaphthene	1.6	ND	Benzo(a)Pyrene	1.6	3.3
Dibenzofuran	1.6	ND	Indeno(1,2,3-cd)Pyrene	1.6	TR
2,4-Dinitrotoluene	1.6	ND	Dibenz(a,h)Anthracene	1.6	ND
			Benzo(g,h,i)Perylene	1.6	1.4

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
TR = Trace amount present but below MDL

QA/QC

Surrogate Recoveries:

		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	27%	23% -	120%
2-Fluorobiphenyl	93%	25% -	121%
Terphenyl-D14	75%	18% -	137%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 06/28/90

Acid Compounds	MDL*	Conc.*
Phenol	1.6	ND
2-Chlorophenol	1.6	ND
2-Methylphenol	1.6	ND
4-Methylphenol	1.6	ND
2-Nitrophenol	1.6	ND
2,4-Dimethylphenol	1.6	ND
2,4-Dichlorophenol	1.6	ND
4-Chloro-3-methylphenol	1.6	ND
2,4,6-Trichlorophenol	8.1	ND
2,4,5-Trichlorophenol	8.1	ND
2,4-Dinitrophenol	8.1	ND
4-Nitrophenol	8.1	ND
4,6-Dinitro-2-methylphenol	8.1	ND
Pentachlorophenol	8.1	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	44%	25%	- 121%
Phenol-D5	70%	24%	- 113%
2,4,6-Tribromophenol	85%	19%	- 122%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	0.1	ND	mg/kg
PCB - Aroclor 1221	0.1	ND	mg/kg
PCB - Aroclor 1232	0.1	ND	mg/kg
PCB - Aroclor 1242	0.1	ND	mg/kg
PCB - Aroclor 1248	0.1	ND	mg/kg
PCB - Aroclor 1254	0.1	ND	mg/kg
PCB - Aroclor 1260	0.1	0.2	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: 99.9%		78-148%

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
Alpha-BHC	5.0	ND	mg/kg
Beta-BHC	5.0	ND	mg/kg
Delta-BHC	5.0	ND	mg/kg
Gamma-BHC (Lindane)	5.0	ND	mg/kg
Heptachlor	5.0	ND	mg/kg
Aldrin	5.0	ND	mg/kg
Heptachlor Epoxide	5.0	ND	mg/kg
Endosulfan I	5.0	ND	mg/kg
4,4'-DDE	5.0	ND	mg/kg
Dieldrin	5.0	ND	mg/kg
Endrin	5.0	ND	mg/kg
4,4'-DDD	5.0	ND	mg/kg
Endosulfan II	5.0	ND	mg/kg
4,4'-DDT	5.0	ND	mg/kg
Endrin Aldehyde	5.0	ND	mg/kg
Endosulfan Sulfate	5.0	ND	mg/kg
Methoxychlor	5.0	ND	mg/kg
Endrin Ketone	5.0	ND	mg/kg
Chlordane	10	ND	mg/kg
Toxaphene	20	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: 99.9% 78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 06/28/90

Parameter	MDL	Concentration	Units
2,4-D	10	ND	mg/kg
Silvex(2,4,5-TP)	10	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.083	18.5	06/22/90	06/25/90	3050/7060(c)
Barium - Total	1.8	65	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.180	0.901	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.36	39	06/22/90	06/25/90	3050/6010(c)
Lead - Total	4	190	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0718	0.0718	06/25/90	06/26/90	7471(c)
Selenium - Total	0.125	ND	06/22/90	06/27/90	3050/7740(c)
Silver - Total	0.79	ND	06/22/90	06/29/90	3005/6010(c)

Notes: ND - Below minimum detectable level (MDL)
* - mg/kg
Soil/solid samples based on sample dry weight.

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 5
Sample Type: Soil

CHAS Lab #: 9006180-05F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	85.3	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06A
Date Received: 06/21/90

Volatile Organic Analysis - System: #2
by EPA Method 8240(ref. c)

Analysis Date: 06/26/90

Parameter	MDL*	Conc.*	Parameter	MDL*	Conc.*
Priority Pollutant Compounds:			1,1,2-Trichloroethane	99	ND
Chloromethane	200	ND	trans-1,3-Dichloropropene	99	ND
Bromomethane	200	ND	2-Chloroethylvinyl Ether	200	ND
Vinyl Chloride	200	ND	Bromoform	99	ND
Chloroethane	200	ND	1,1,2,2-Tetrachloroethane	99	ND
Methylene Chloride	99	330	Tetrachloroethene	99	ND
Trichlorofluoromethane	99	ND	Toluene	99	ND
1,1-Dichloroethene	99	ND	Chlorobenzene	99	ND
1,1-Dichloroethane	99	ND	Ethylbenzene	99	ND
trans-1,2-Dichloroethene	99	ND			
Chloroform	99	ND	**Hazardous Substance List Compounds:**		
1,2-Dichloroethane	99	ND	Acetone	390	ND
1,1,1-Trichloroethane	99	ND	Carbon Disulfide	200	ND
Carbon Tetrachloride	99	ND	2-Butanone	390	ND
Bromodichloromethane	99	ND	Vinyl Acetate	200	ND
1,2-Dichloropropane	99	ND	4-Methyl-2-Pentanone	99	ND
cis-1,3-Dichloropropene	99	ND	2-Hexanone	99	ND
Trichloroethene	99	ND	Styrene	99	ND
Benzene	99	ND	Total Xylenes	99	ND
Dibromochloromethane	99	ND			
			Additional Compounds:		
			Dibromoethane(EDB)	99	ND
			Methyl-t-Butylether(MTBE)	200	ND

Notes ND = Below minimum detectable level (MDL)
TR = Trace amount present but below MDL
* = ug/kg

No additional peaks observed in sample

QA/QC	Surrogate Recoveries:		Acceptance Criteria:	Water	Soil
	d4-1,2-Dichloroethane:	95 %		76-114	70-121
	d8-Toluene:	102 %		88-110	84-138
	p-Bromofluorobenzene:	111 %		86-115	59-113

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06G
Date Received: 06/21/90

Semi-Volatile Base/Neutral Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Base/Neutral Compounds	MDL*	Conc.*	Base/Neutral Compounds	MDL*	Conc.*
bis(2-Chloroethyl)Ether	2.0	ND	2,6-Dinitrotoluene	2.0	ND
1,3-Dichlorobenzene	2.0	ND	Diethylphthalate	2.0	ND
1,4-Dichlorobenzene	2.0	ND	4-Chlorophenyl-phenylether	2.0	ND
1,2-Dichlorobenzene	2.0	ND	Fluorene	2.0	ND
bis(2-Chloroisopropyl)Ether	2.0	ND	4-Nitroaniline	9.8	ND
N-Nitroso-Di-n-Propylamine	2.0	ND	N-Nitrosodiphenylamine	2.0	ND
Hexachloroethane	2.0	ND	4-Bromophenyl-phenylether	2.0	ND
Nitrobenzene	2.0	ND	Hexachlorobenzene	2.0	ND
Isophorone	2.0	ND	Phenanthrene	2.0	ND
bis(2-Chloroethoxy)Methane	2.0	ND	Anthracene	2.0	ND
1,2,4-Trichlorobenzene	2.0	ND	Di-n-Butylphthalate	2.0	ND
Naphthalene	2.0	ND	Fluoranthene	2.0	TR
4-Chloroaniline	2.0	ND	Pyrene	2.0	TR
Hexachlorobutadiene	2.0	ND	Butylbenzylphthalate	2.0	ND
2-Methylnaphthalene	2.0	ND	3,3'-Dichlorobenzidine	3.9	ND
Hexachlorocyclopentadiene	2.0	ND	Benzo(a)Anthracene	2.0	ND
2-Chloronaphthalene	2.0	ND	bis(2-Ethylhexyl)Phthalate	3.9	TR
2-Nitroaniline	9.8	ND	Chrysene	2.0	ND
Dimethylphthalate	2.0	ND	Di-n-Octylphthalate	2.0	ND
Acenaphthylene	2.0	ND	Benzo(b)Fluoranthene	2.0	ND
3-Nitroaniline	9.8	ND	Benzo(k)Fluoranthene	2.0	2.4
Acenaphthene	2.0	ND	Benzo(a)Pyrene	2.0	TR
Dibenzofuran	2.0	ND	Indeno(1,2,3-cd)Pyrene	2.0	ND
2,4-Dinitrotoluene	2.0	ND	Dibenz(a,h)Anthracene	2.0	ND
			Benzo(g,h,i)Perylene	2.0	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
TR = Trace amount present but below MDL

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
Nitrobenzene-D5	26%	23% - 120%	
2-Fluorobiphenyl	83%	25% - 121%	
Terphenyl-D14	72%	18% - 137%	

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06G
Date Received: 06/21/90

Acid Extractable Organics
by EPA Method 8270 (ref. c) - System C
Extraction Date: 06/25/90
Analysis Date: 07/03/90

Acid Compounds	MDL*	Conc.*
Phenol	2.0	ND
2-Chlorophenol	2.0	ND
2-Methylphenol	2.0	ND
4-Methylphenol	2.0	ND
2-Nitrophenol	2.0	ND
2,4-Dimethylphenol	2.0	ND
2,4-Dichlorophenol	2.0	ND
4-Chloro-3-methylphenol	2.0	ND
2,4,6-Trichlorophenol	9.8	ND
2,4,5-Trichlorophenol	9.8	ND
2,4-Dinitrophenol	9.8	ND
4-Nitrophenol	9.8	ND
4,6-Dinitro-2-methylphenol	9.8	ND
Pentachlorophenol	9.8	ND

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg

QA/QC

Surrogate Recoveries:		Surrogate Acceptance Criteria: Range	CLP
2-Fluorophenol	40%	25% -	121%
Phenol-D5	70%	24% -	113%
2,4,6-Tribromophenol	49%	19% -	122%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06N
Date Received: 06/21/90

Polychlorinated Biphenyls (PCB's)
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
PCB - Aroclor 1016	1.0	ND	mg/kg
PCB - Aroclor 1221	1.0	ND	mg/kg
PCB - Aroclor 1232	1.0	ND	mg/kg
PCB - Aroclor 1242	1.0	ND	mg/kg
PCB - Aroclor 1248	1.0	ND	mg/kg
PCB - Aroclor 1254	1.0	ND	mg/kg
PCB - Aroclor 1260	1.0	ND	mg/kg

Notes: ND = Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery:	Acceptance Criteria:	Soil (EPA 3540)
Hexabromobenzene: Diluted out.		78-148%

Clean Harbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06N
Date Received: 06/21/90

Organochlorine Pesticides
by EPA Method 3540/8080

Extraction Date: 06/22/90
Analysis Date: 06/27/90

Parameter	MDL	Concentration	Units
Alpha-BHC	5.0	ND	mg/kg
Beta-BHC	5.0	ND	mg/kg
Delta-BHC	5.0	ND	mg/kg
Gamma-BHC (Lindane)	5.0	ND	mg/kg
Heptachlor	5.0	ND	mg/kg
Aldrin	5.0	ND	mg/kg
Heptachlor Epoxide	5.0	ND	mg/kg
Endosulfan I	5.0	ND	mg/kg
4,4'-DDE	5.0	ND	mg/kg
Dieldrin	5.0	ND	mg/kg
Endrin	5.0	ND	mg/kg
4,4'-DDD	5.0	ND	mg/kg
Endosulfan II	5.0	ND	mg/kg
4,4'-DDT	5.0	ND	mg/kg
Endrin Aldehyde	5.0	ND	mg/kg
Endosulfan Sulfate	5.0	ND	mg/kg
Methoxychlor	5.0	ND	mg/kg
Endrin Ketone	5.0	ND	mg/kg
Chlordane	10	ND	mg/kg
Toxaphene	20	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

QA/QC Surrogate Recovery: Acceptance Criteria: Soil (EPA 3540)
Hexabromobenzene: Diluted out. 78-148%

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06N
Date Received: 06/21/90

Chlorinated Phenoxy Acid Herbicides
by Method 509B(b)

Extraction Date: 06/26/90
Analysis Date: 07/03/90

Parameter	MDL	Concentration	Units
2,4-D	1.0	ND	mg/kg
Silvex(2,4,5-TP)	1.0	ND	mg/kg

Notes: ND - Below minimum detectable level (MDL)
Soil/solid sample results based on sample dry weight

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06F
Date Received: 06/21/90

Parameter	MDL*	Result*	Digestion Date	Analysis Date	Method Number and Reference
Arsenic - Total	0.083	29.7	06/22/90	06/25/90	3050/7060(c)
Barium - Total	2.4	320	06/22/90	06/25/90	3050/6010(c)
Cadmium - Total	0.236	4.96	06/22/90	06/25/90	3050/6010(c)
Chromium - Total	0.47	54	06/22/90	06/25/90	3050/6010(c)
Lead - Total	5	230	06/22/90	06/25/90	3050/6010(c)
Mercury - Total	0.0469	0.2194	06/25/90	06/26/90	7471(c)
Selenium - Total	0.124	ND	06/22/90	06/27/90	3050/7740(c)
Silver - Total	0.90	0.90	06/22/90	06/29/90	3005/6010(c)

Notes: ND = Below minimum detectable level (MDL)
* = mg/kg
Soil/solid samples based on sample dry weight.

CleanHarbors

Client: Clean Harbors Cleveland Field Services
Sample I.D.: COMP. 6
Sample Type: Soil

CHAS Lab #: 9006180-06F
Date Received: 06/21/90

Parameter	MDL	Result	Units	Analysis Date	Method Number and Reference
Total Solids	--	66.0	%	06/22/90	209F(b)

Notes: ND = Below minimum detectable level (MDL)
Soil/solid samples based on sample dry weight.